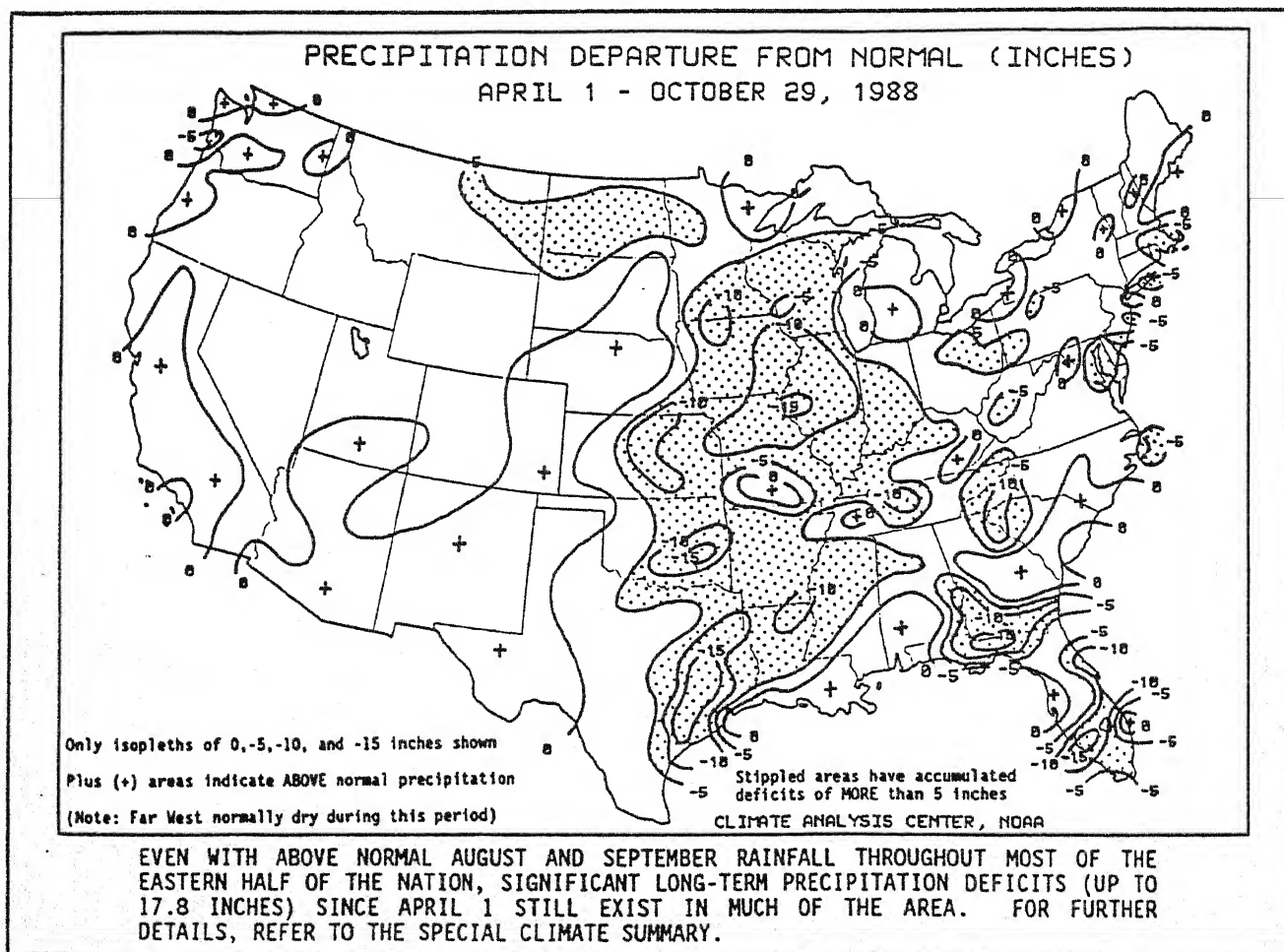


WEEKLY CLIMATE BULLETIN

No. 88/44

WASHINGTON, DC

OCTOBER 29, 1988



UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE - NATIONAL METEOROLOGICAL CENTER

WEEKLY CLIMATE BULLETIN

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This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief, concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major global climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every 3 months).
- Global temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Center via the Global Telecommunication System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF OCTOBER 29, 1988
(Approximate duration of anomalies is in brackets.)

1. Southwestern United States:

WARM CONDITIONS PREVAIL.

Temperatures were as much as 8.9°C (16°F) above normal last week as unusually warm conditions persisted. See U.S. Weekly Weather Highlights [4 weeks].

2. Midwestern United States:

EARLY AUTUMN CHILL.

A series of early season arctic air masses brought unusually cold conditions to the area. Temperatures averaged as much as 7.6°C (13.7°F) below normal. See U. S. Weekly Weather Highlights [4 weeks].

3. Central America:

TROPICAL STORM MIRIAM POUNDS REGION.

Heavy precipitation, as much as 87.4 mm (3.44 inches), was reported as Tropical Storm Miriam battered Nicaragua, Costa Rica, El Salvador, and Guatemala Sunday (Oct. 23) and Monday (Oct. 24) [Episodic Event].

4. Central South America:

BELOW NORMAL PRECIPITATION PERSISTS.

Generally less than 14.0 mm (0.55 inches) of precipitation was reported in most of southern Brazil, southeastern Paraguay, Uruguay, and parts of northeastern Argentina; however, a few stations in the region received as much as 125 mm (4.92 inches) of rainfall [18 weeks].

5. Europe:

AREA UNUSUALLY WARM.

Temperatures averaged up to 6.4°C (11.5°F) above normal as unusually warm conditions prevailed [4 weeks].

6. Eastern Asia:

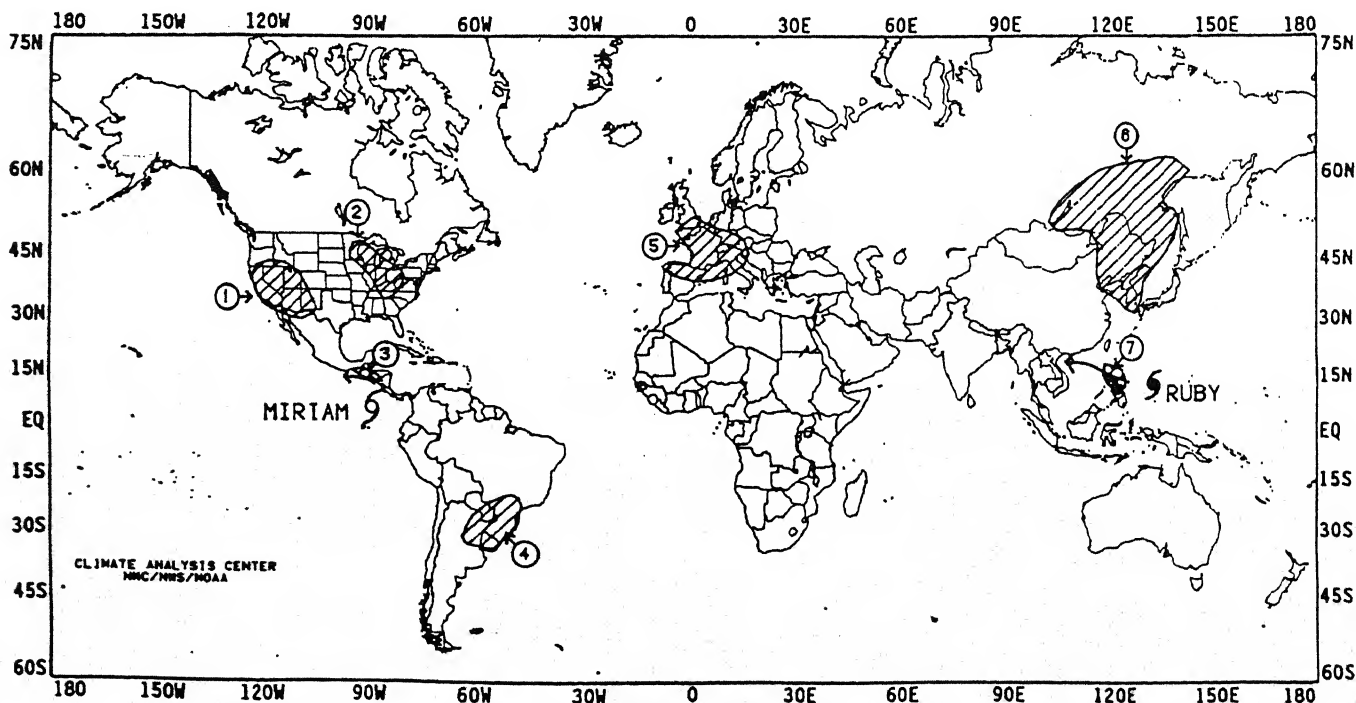
WARM CONDITIONS DEVELOP.

A late season warm spell, with temperatures as much as 11.4°C (20.5°F) above normal, developed across southeastern Siberia, northeastern China, and Korea [3 weeks].

7. Philippines:

RAINS FROM RUBY CONTINUE.

Typhoon Ruby continued to bring heavy rains to the Philippines while moving northwestward. As much as 331.9 mm (13.07 inches) of precipitation was reported [Episodic Event].



Approximate locations of the major anomalies and events described above are shown on this map. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, longer term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF OCTOBER 23 THROUGH OCTOBER 29, 1988.

Most of the country east of the Mississippi River measured some precipitation, but amounts were generally much lighter than the previous week. The largest weekly totals (up to 5.9 inches) occurred in eastern Texas, Louisiana, southern Arkansas, northern Mississippi, and western Tennessee as many stations in the region reported between 2 and 4 inches of rainfall, according to the River Forecast Centers (see Table 1). Farther north, moderate to heavy precipitation was recorded in eastern Maine and along the eastern shores of Lakes Michigan, Erie, and Ontario, where up to 6 inches of lake-effect snow fell on parts of the Upper Peninsula of Michigan. Light to moderate amounts were observed along coastal Washington, from north-central Montana southeastward to northern South Dakota, in most of southern Texas, and throughout much of the eastern half of the nation with the exception of the lower Missouri Valley, Florida, and parts of the mid-Atlantic states. Little or no precipitation fell on most of the western half of the United States, Florida, and from the southern Appalachians northeastward to the Delmarva Peninsula. Even with above normal rainfall during August and September in much of the eastern two-thirds of the country, long-term precipitation deficits since April 1 still remain in most of the northern, central, and southeastern U.S. For further details, refer to the Special Climate Summary on page 9.

Temperatures during the last week of October were similar to the previous three weeks as abnormally warm conditions persisted in the West while unseasonably cold weather remained in the East. A

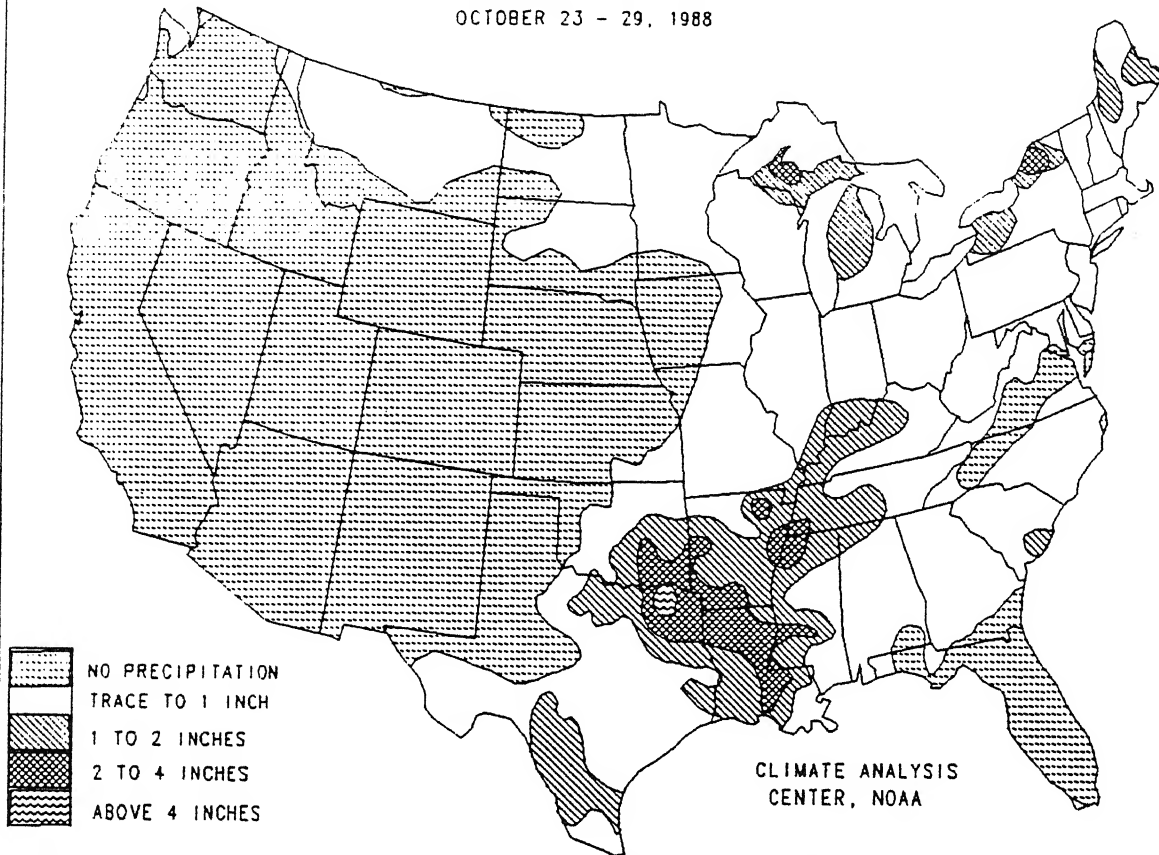
ridge of high pressure centered over the Far West brought dry and mild weather to the western third of the nation. Greatest positive departures (between +9° and +11°F) were located in southern Texas, the desert Southwest, and at stations scattered in the Great Basin and central Rockies (see Table 2). Near to slightly above normal temperatures occurred along the Gulf and Pacific Coasts, in northern Maine, southeastern Alaska, Hawaii, and throughout the interior Pacific Northwest. During the week, 14 stations in the South and Southwest tied or set new daily maximum temperatures as readings in the nineties were reported in central and southern Texas, the desert Southwest, and in parts of central California. Another blast of cold Canadian air dropped temperatures into the teens across the northern thirds of the Rockies and Great Plains and the upper Midwest, and to the single digits (1°F at Cut Bank, MT and Warroad, MN on 10/28 and 10/29, respectively) in northern Montana, North Dakota, and northern Minnesota (see Figure 1). Weekly temperatures averaged between 10° and 14°F below normal from North Dakota eastward to Wisconsin and southeastward to Ohio (see Table 3). In addition, the northern half of the Great Plains and the northern two-thirds of the country east of the Mississippi also experienced unusually cold conditions, but only 10 stations tied or established new daily record lows during the week. Frigid Arctic air prevailed in northern and central Alaska as temperatures averaged as much as 14°F below normal last week. Gusty winds and low temperatures produced sub-zero wind chills throughout the north-central U.S. (see Figure 2).

TABLE 1. Selected stations with more than one and a half inches of precipitation for the week.

<u>Station</u>	<u>Amount(In)</u>	<u>Station</u>	<u>Amount(In)</u>
Hilo/Lyman, Hawaii, HI	6.03	Buffalo, NY	1.92
Yakutat, AK	4.24	Sault Ste. Marie, MI	1.75
Shreveport/Barksdale AFB, LA	3.46	Lufkin, TX	1.73
Cordova/Mile 13, AK	3.13	Jackson, TN	1.70
Shreveport, LA	3.12	Palacios, TX	1.69
Adak, AK	2.84	Longview/Gregg Co., TX	1.66
Alexandria/England AFB, LA	2.44	Memphis, TN	1.65
Watertown, NY	2.43	Lafayette, LA	1.60
Greenwood, MS	2.04	Muskegon, MI	1.58
Hancock/Houghton Co., MI	2.03		

OBSERVED PRECIPITATION

OCTOBER 23 - 29, 1988



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F) OCTOBER 23 - 29, 1988

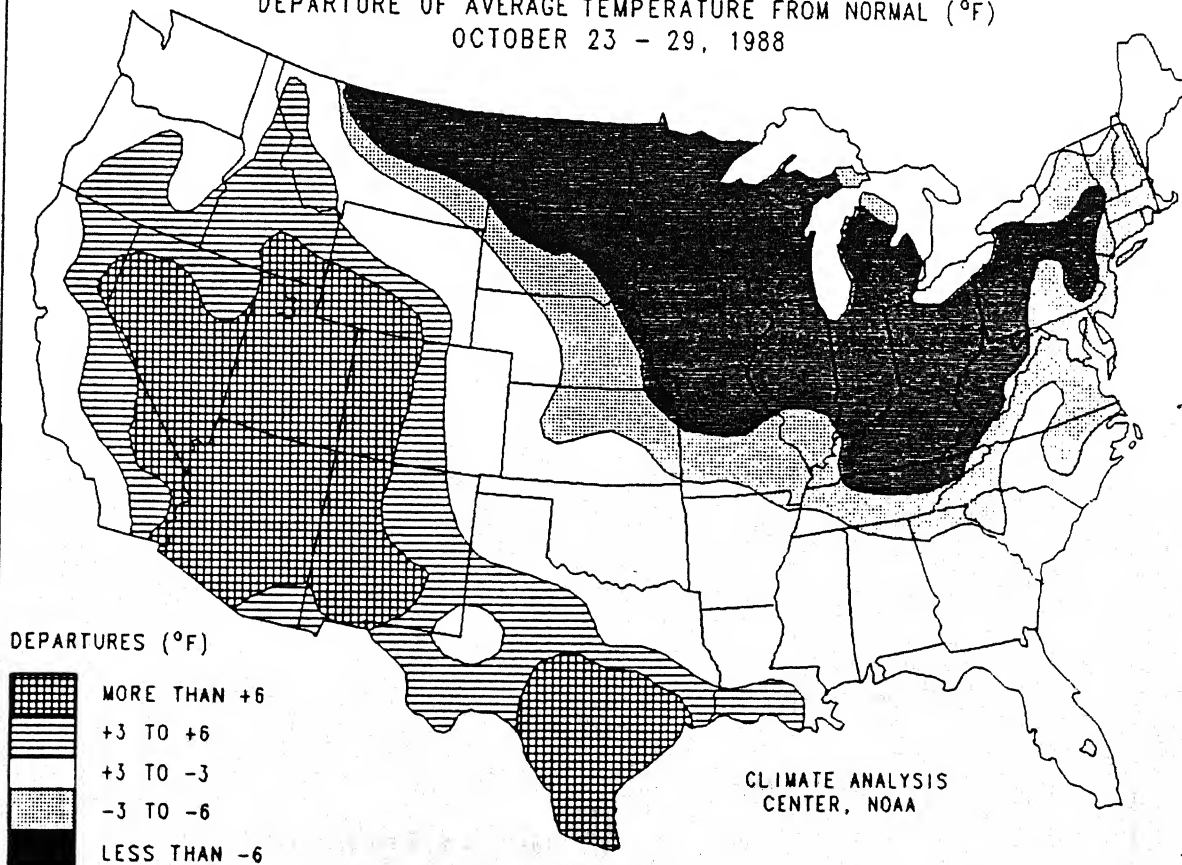
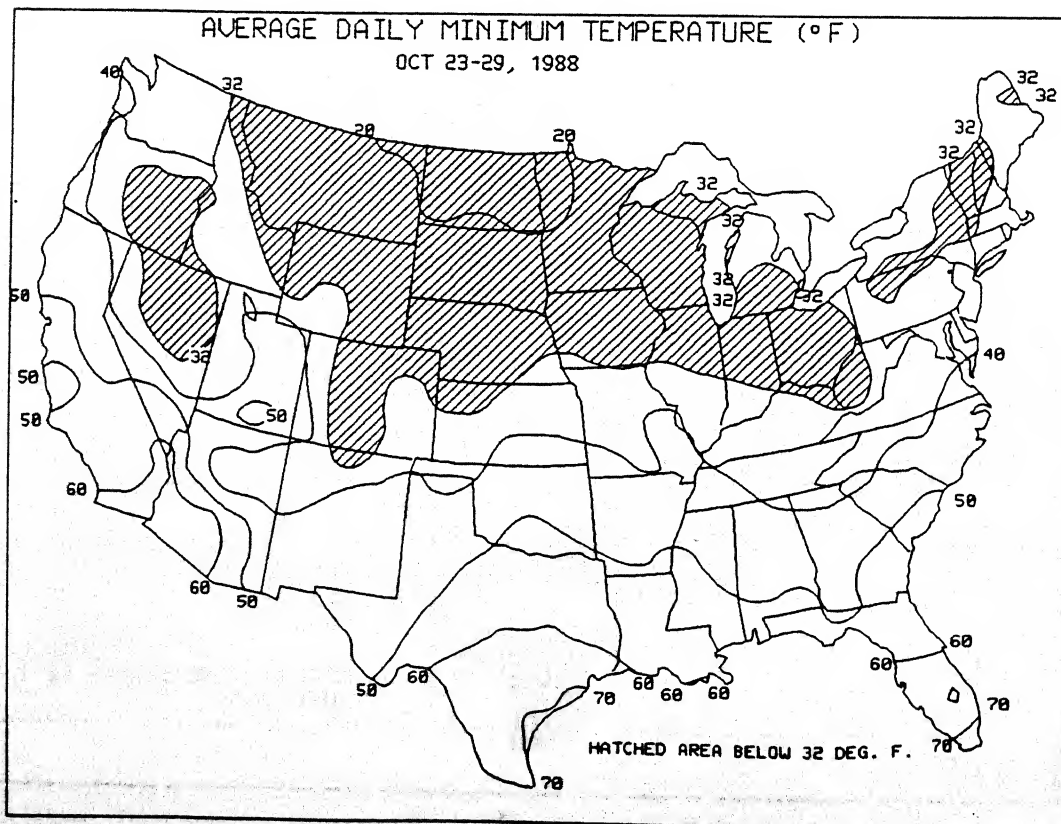


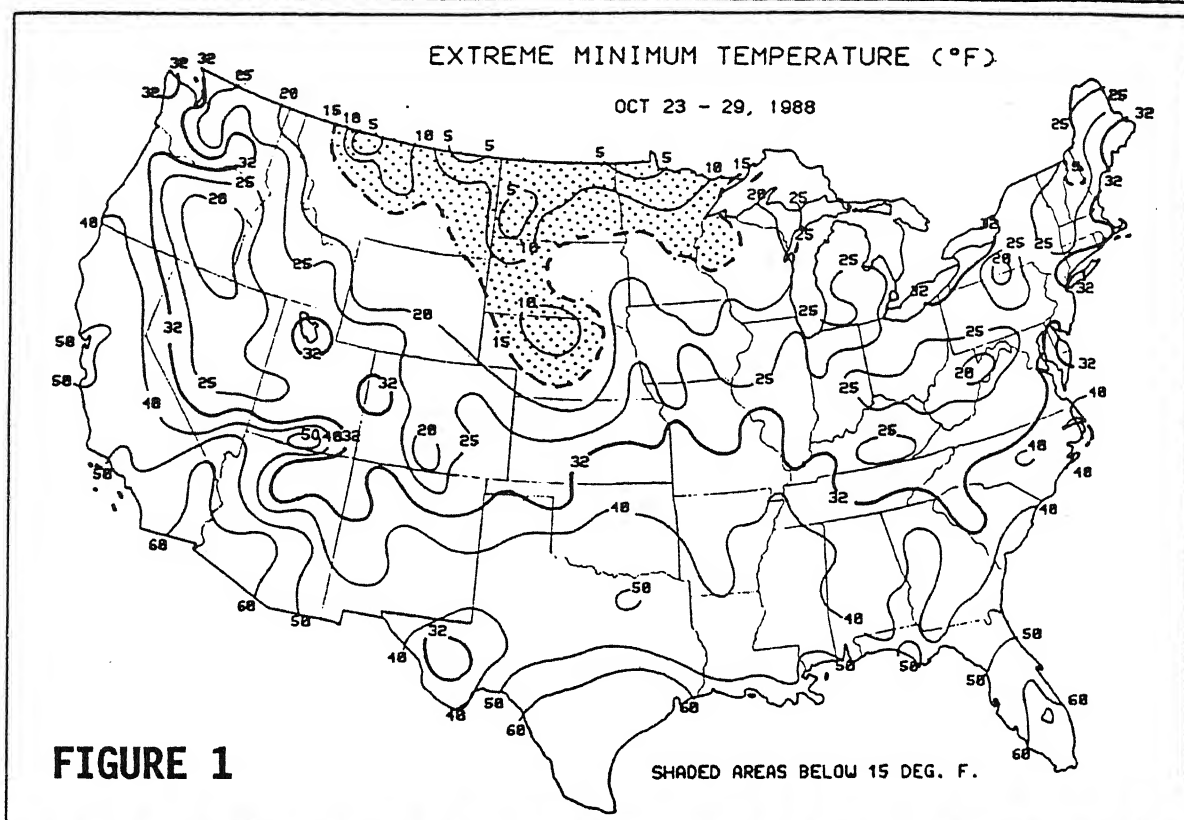
TABLE 2. Selected stations with temperatures averaging greater than 6.0°F ABOVE normal for the week.

Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
San Antonio, TX	+11.2	77.6	Salt Lake City, UT	+8.4	56.4
Phoenix, AZ	+11.0	79.7	Delta, UT	+8.2	55.0
Rock Springs/Sweetwater, WY	+10.4	50.2	Cedar City, UT	+8.1	55.4
Reno, NV	+10.3	56.6	Pocatello, ID	+7.5	51.0
Beeville NAS, TX	+9.5	79.0	Kingsville NAS, TX	+7.4	78.9
Austin, TX	+9.2	75.0	Corpus Christi, TX	+7.1	77.8
Yuma, AZ	+9.1	80.8	Glendale/Luke AFB, AZ	+7.1	73.2
Las Vegas, NV	+9.1	71.6	Medford, OR	+7.0	57.0
Victoria, TX	+9.0	77.5	Deming, NM	+6.7	63.8
Daggett, CA	+8.9	73.3	Grand Junction, CO	+6.7	56.4
Farmington, NM	+8.9	57.1	Blythe, CA	+6.6	77.2
McAllen, TX	+8.8	80.7	Galveston, TX	+6.6	75.9
Houston, TX	+8.8	75.5	Burley, ID	+6.5	50.9
Prescott, AZ	+8.7	59.7	Brownsville, TX	+6.4	78.9
Alice, TX	+8.6	78.6	Tucson, AZ	+6.4	72.5
Palacios, TX	+8.5	76.6	Laramie, WY	+6.4	44.5
Austin/Bergstrom AFB, TX	+8.5	74.8	Winnemucca, NV	+6.3	50.9
Ely, NV	+8.5	50.3	Lander, WY	+6.1	47.5
College Station, TX	+8.4	73.9			

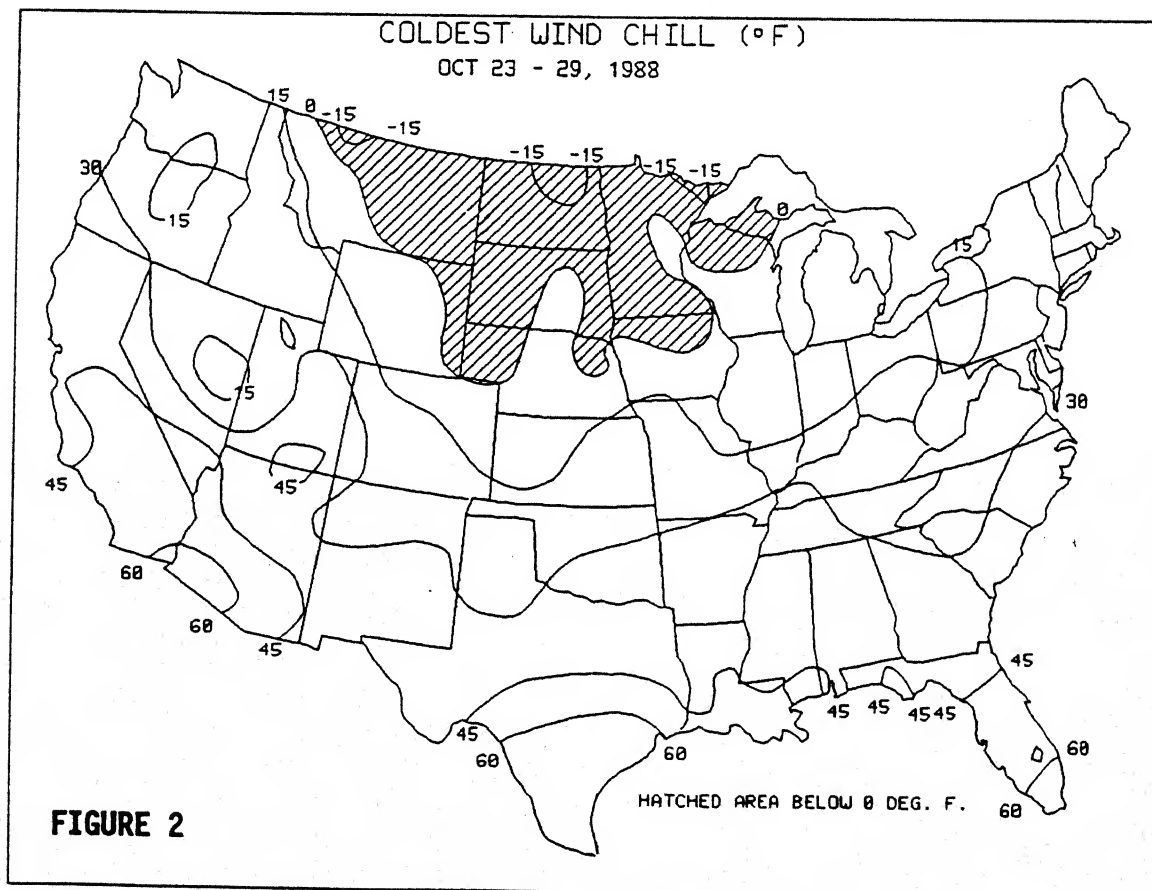
TABLE 3. Selected stations with temperatures averaging greater than 9.0°F BELOW normal for the week.

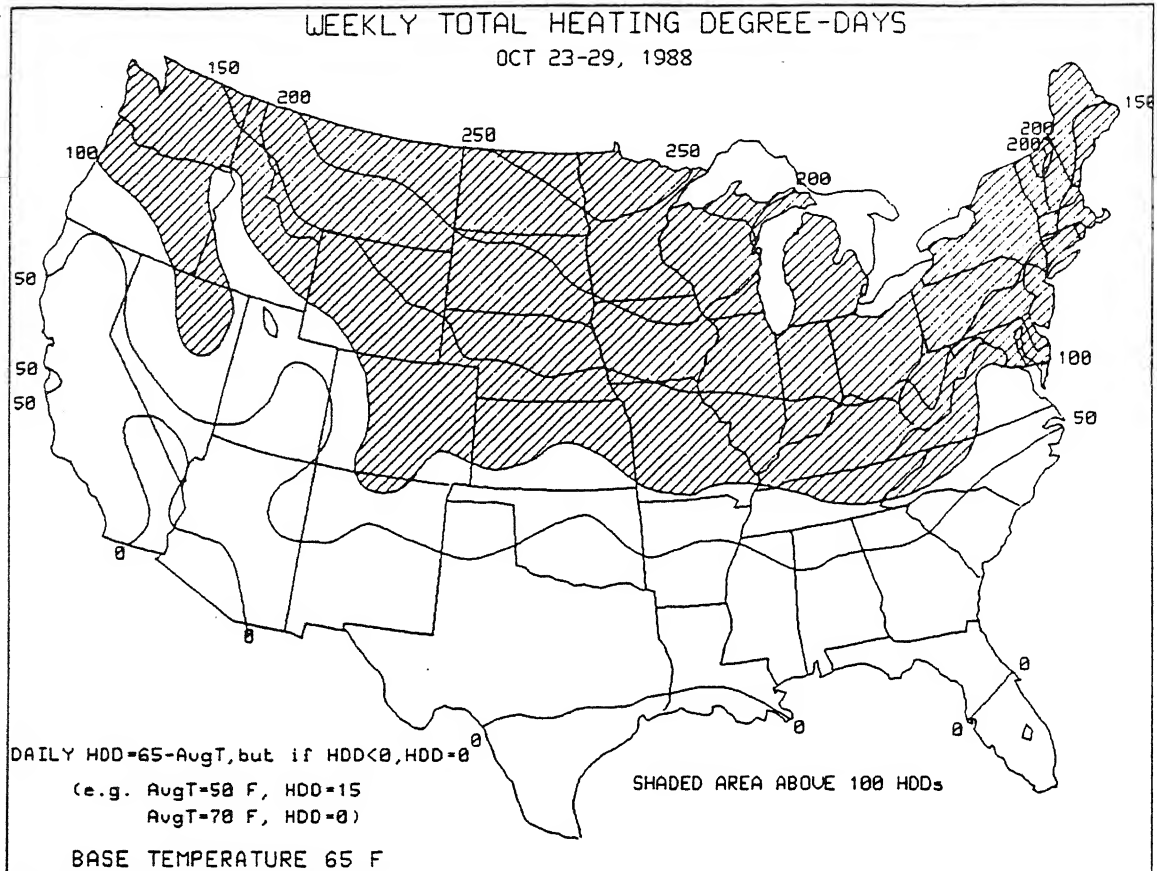
Station	TDepNml	AvgT(°F)	Station	TDepNml	AvgT(°F)
Barrow, AK	-14.0	-5.6	Cleveland, OH	-10.0	39.4
Grand Forks, ND	-13.7	25.6	Minneapolis, MN	-9.9	34.5
South Bend, IN	-12.2	36.6	Mason City, IA	-9.9	35.0
Fargo, ND	-12.0	28.8	Moline, IL	-9.8	38.7
Alexandria, MN	-11.6	29.6	Eau Claire, WI	-9.7	33.2
Chicago/O'Hare, IL	-11.4	37.5	Burlington, IA	-9.7	40.6
Park Falls, WI	-11.2	29.9	Jamestown, ND	-9.6	30.6
Cedar Rapids, IA	-11.2	37.0	Dickinson, ND	-9.6	31.2
Fort Wayne, IN	-11.2	37.1	La Crosse, WI	-9.5	36.6
Rochester, MN	-10.9	33.0	Wausau, WI	-9.4	33.1
International Falls, MN	-10.7	26.9	Detroit, MI	-9.4	38.1
Grand Rapids, MI	-10.4	36.5	Cincinnati, OH	-9.4	41.7
Dayton, OH	-10.3	39.6	Findlay, OH	-9.3	39.1
Waterloo, IA	-10.2	35.6	Columbus, OH	-9.3	40.3
Toledo, OH	-10.2	37.4	Havre, MT	-9.2	32.2
Duluth, MN	-10.1	29.4	Selfridge AFB, MI	-9.2	38.6
Rockford, IL	-10.1	37.0	Akron, OH	-9.2	39.1
Bettles, AK	-10.0	2.4	Green Bay, WI	-9.1	34.7
Minot, ND	-10.0	29.9	Lansing, MI	-9.1	36.9
St. Cloud, MN	-10.0	31.7	Milwaukee, WI	-9.1	37.4



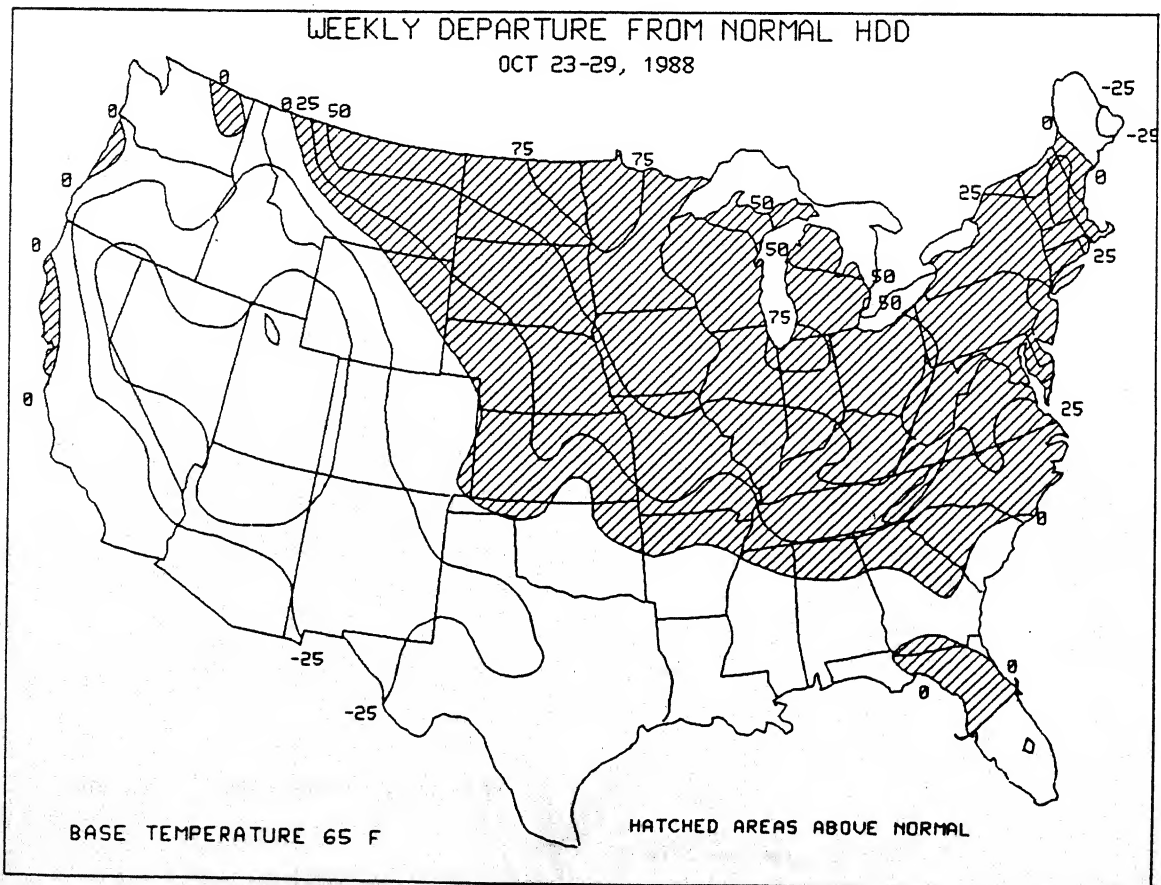


Readings in the single digits occurred in parts of the northern Great Plains and upper Midwest, while the freezing line dipped as far south as Tennessee and South Carolina (top). Gusty winds and cold Canadian air combined to produce sub-zero wind chills in the Dakotas, Minnesota, and Montana (bottom).



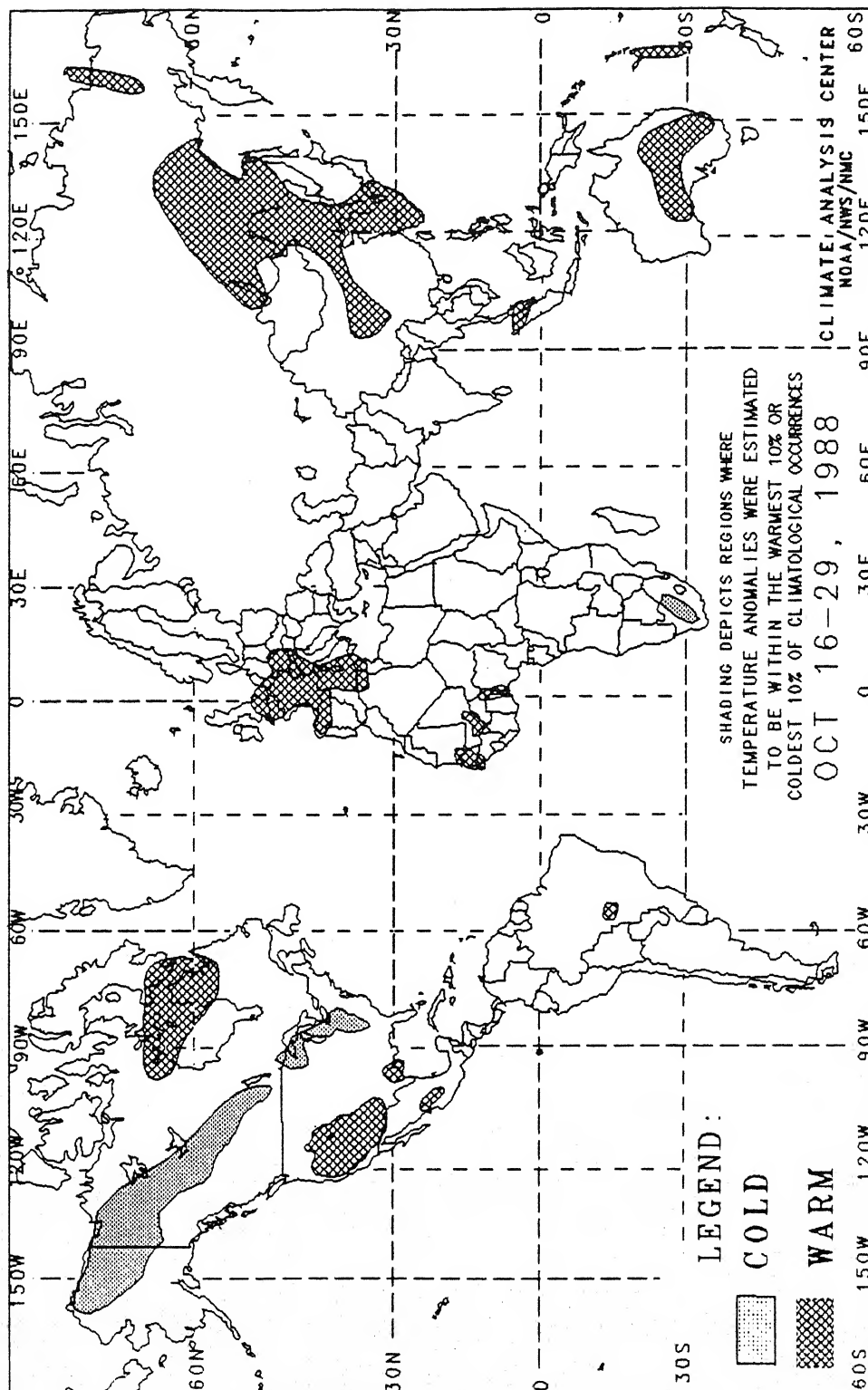


Unseasonably cold weather across the north-central and northeastern U.S. required significant (>200 HDD) heating demand (top) as weekly HDD departures were more than 75 degrees above normal in parts of the Midwest and Great Plains (bottom).



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

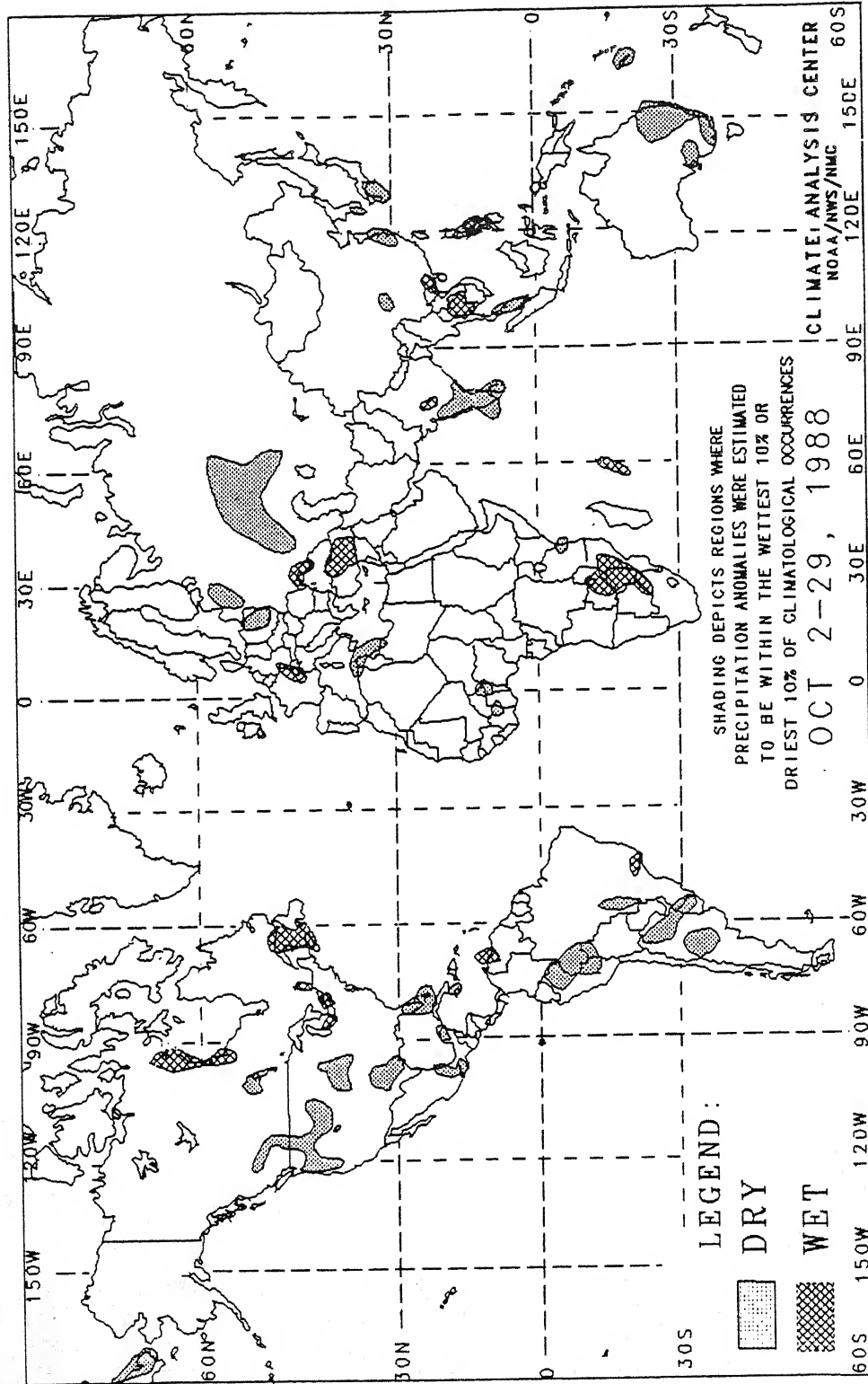
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data is insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

CLIMATE ANALYSIS CENTER, NMC
NATIONAL WEATHER SERVICE, NOAA

LONG-TERM PRECIPITATION DEFICIENCIES SINCE APRIL 1 STILL
REMAIN IN MUCH OF THE MISSISSIPPI AND MISSOURI VALLEYS
DESPITE ABOVE NORMAL AUGUST AND SEPTEMBER RAINFALL.

After most of the nation's midsection and parts of New England, the Southeast, and the northern Rockies experienced record (or near record) dryness during the Spring and early Summer (April-June) (see Weekly Climate Bulletin (WCB) #88/39 dated 9/24/88), the month of July brought above normal rainfall to New England and the lower Mississippi and Ohio Valleys. During August, the middle Missouri and upper Mississippi Valleys, New England, and the Gulf Coast received excess precipitation, while ample rains fell on the Southeast and the middle Missouri and upper Mississippi Valleys during September. With 3 months of above normal rainfall, short-term dryness was ameliorated in most of the eastern half of the nation.

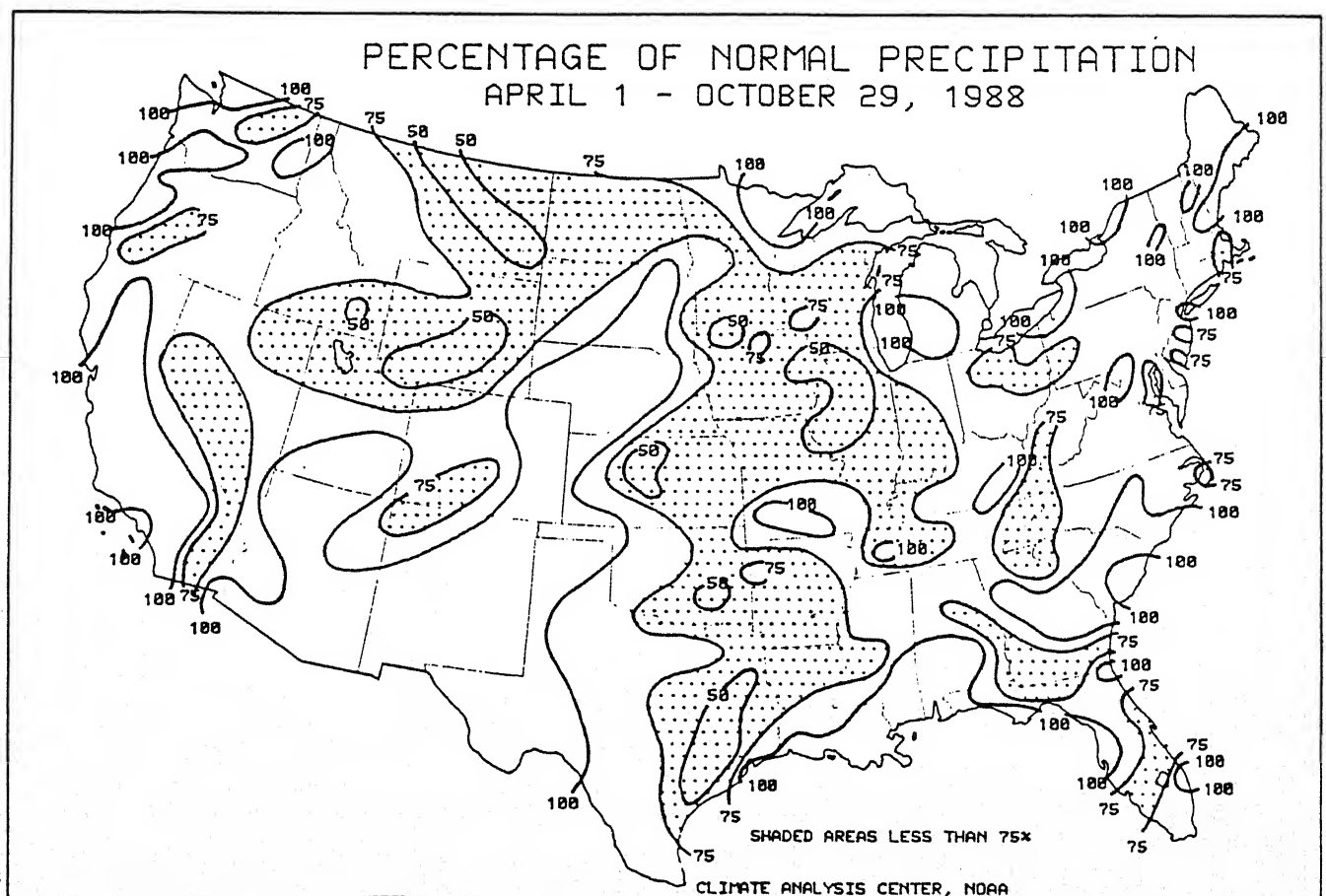


Figure 1. Percent of normal precipitation during April 1-October 29, 1988. Isopleths drawn only for 50, 75, and 100% with stippled areas less than 75%.

Long-term dryness, however, has persisted in much of the Mississippi and Missouri Valleys since April 1 as most of the area has received less than 75% of normal precipitation (see Figure 1). The regions with less than 50% of normal precipitation have significantly shrunk since the last review (see WCB #88/33 dated 8/13/88, page 9), but large areas of less than 75% of normal precipitation are still found. Precipitation deficits of more than 5 inches have developed over a broad section of the central U.S., especially in the western Corn Belt, eastern Texas, and northern Florida, where deficiencies have exceeded 15 inches at some stations (see front cover). According to the Palmer Drought Index (PDI), severe to extreme long-term drought continues throughout much of the north-central U.S. and in portions of the Midwest, Appalachians, and South (see Figure 2). With the start of the normally dry fall and winter months in the northern Great Plains, prospects for significant precipitation to eliminate long-term dryness in the area appear unfavorable.

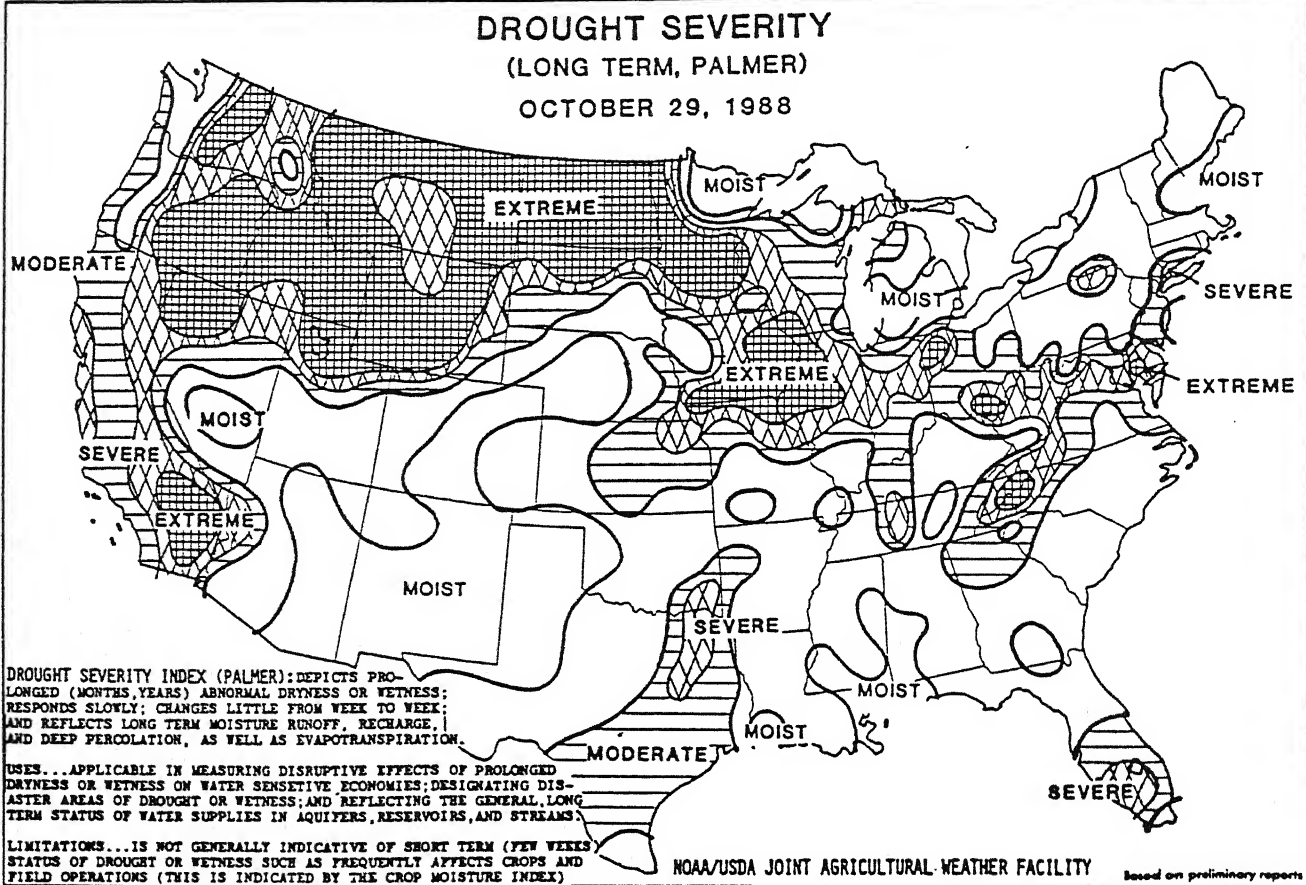


Figure 2. Palmer Drought Index for the week ending Oct. 29, 1988. Severe to extreme long-term drought existed in most of the north-central U.S. and in sections of the Midwest, mid-Atlantic, and South.

